Idaho Disease

BULLETIN

Volume 11 Number 1 *Division of Health* *March, 2004*

Influenza, Avian Influenza, and SARS

Influenza 2003 - 2004 Season Update

The influenza season seems to have already peaked in Idaho with only sporadic evidence of activity being reported at this time. Although this flu season began earlier than usual, in November rather than December or January, and the prevailing circulating strain was type A Fujian, a slight variation to the expected strain, fears that this would be a more severe and prolonged influenza season have, to date, not been realized.

Influenza infections are not reportable in Idaho; however, the Idaho State Bureau of Laboratories (ISBL) tests virus isolates throughout the season to track circulating strains, and the Bureau of Health Policy and Vital Statistics tracks influenza-related deaths. All virus isolates tested to date by the ISBL have been Type A subtype H3N2 Fujian-like strain. In past seasons influenza B has been detected later than influenza A; therefore, flu activity may increase again. Documented influenza-related mortality in Idaho over the last decade has ranged from 3 to 34 deaths per season. As of this printing, 26 individuals statewide have died from influenza-related complications this season.

Avian Influenza

Avian influenza strain A(H5N1) causes high mortality in poultry flocks and can cause illness in humans. Over 30 confirmed human cases of A(H5N1) and over 20 human deaths have recently occurred in Thailand and Vietnam. Currently no definitive evidence has been found for human-to-human transmission. The source of exposure in human cases of A(H5N1) influenza in affected countries is under investigation, although most human cases have been linked to direct contact with diseased birds. The co-circulation of human and highly pathogenic animal influenza viruses is of serious concern because an exchange of genes between viruses might occur if individuals were co-infected with both human and animal influenza viruses. Gene exchange could give rise to a new influenza virus to which humans would have little or no immunity and which could be transmitted from person to person.

Year-round surveillance for influenza-like illnesses and laboratory testing for influenza virus is strongly encouraged to detect unusual activity and strains of flu. Surveillance, reporting, and rapid response to emerging respiratory pathogens are critical public health functions that depend on your participation. Please contact Colleen Greenwalt at the ISBL, Virology Section at 334-2235 ext. 228 for information on free testing for influenza and other selected respiratory viruses.

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There is considerable potential for the clinical presentation and travel history of persons with Influenza A(H5N1) and SARS to overlap. We are requesting, in accordance with the Centers for Disease Control and Prevention (CDC) recommendations, enhanced surveillance by hospitals and clinicians to identify patients who:

- Have been hospitalized with an unexplained severe respiratory illness, AND
- Have a recent travel history to geographic regions with documented avian influenza A(H5N1) outbreaks including Vietnam, South Korea, Thailand, Laos, China, Hong Kong, Japan, Indonesia, and Cambodia. (To date, Vietnam and Thailand are the only countries with laboratory confirmed human infections.)
- Or, should SARS reemerge, have a travel history to those affected countries.

An influenza infection should be considered in the differential diagnosis when evaluating a possible SARS patient.

Swabs from hospitalized individuals who test positive on rapid flu tests should be forwarded to the state laboratory for further analysis.

Current information on SARS and influenza A(H5N1) can be found at the following websites respectively: http://www.cdc.gov/ncidod/sars/ and http://www.cdc.gov/flu/

If you have any questions, feel free to call the Office of Epidemiology and Food Protection at 208-334-5939.

BSE in the United States

In December 2003 a cow in Washington State, imported from Canada in 2001, was determined to have BSE (bovine spongiform encephal-opathy, mad cow disease). Because the cow was reported to be non-ambulatory (a "downer") at slaughter, brain tissue samples were taken by USDA's Animal and Plant Health Inspection Service (APHIS) as part of its targeted surveillance for BSE. This was the first confirmation of BSE in the United States. This finding stimulated massive trace back and trace forward efforts in an attempt to remove any animals with a similar feed exposure history and attempt to keep any of these animal products out of the food supply. One of the myriad of leads ultimately led to the destruction of seven animals from one Southeastern Idaho farm, all of which tested negative for BSE.

Clinical Comparison: Avian Influenza vs. SARS

Influenza A (H5N1)	**SARS**
Clinical Description (5 fatal cases) Cases of Influenza A (H5N1), Thailand, 2004 MMWR Feb. 13, 2004/Vol 53/No. 5 • fever (5) • cough (5) • clinical pneumonia (5) • ARDS and respiratory failure (5) • lymphopenia (4) • sore throat (4) • rhinorrhea (2) As of Feb 25, 2004, 22/32 laboratory confirmed cases from Thailand and Vietnam have died (69% case fatality rate).	**Clinical Description** (138 cases) A major outbreak of SARS in Hong Kong NEJM April 7, 2003 (incubation period of 2-10 days for SARS) • fever (100%) • chills, rigors, or both (73%) • lymphopenia (70%) • myalgia (61%) • cough (57%) • headache (56%) • sore throat (23%) • nausea, vomiting, diarrhea (20%) Predominantly lower respiratory tract symptoms; dry cough and shortness of breath could follow within 27 days of onset

vCJD and the BSE connection: what we know today

Since 1996, strong evidence has accumulated for a causal relationship between BSE and the human disease variant CJD (vCJD). Both are invariably fatal brain diseases with unusually long incubation periods measured in years. BSE and vCJD are believed to be caused by an unconventional transmissible agent, the prion protein. Humans are thought to acquire the infection in most cases by consuming contaminated animal tissue, particularly from the central nervous system, dorsal root ganglia, and possibly distal ileum of affected cattle.

As of December 1, 2003, a total of 153 cases of vCJD had been reported in the world: 143 from the United Kingdom, 6 from France, and 1 each from Canada, Ireland, Italy, and the United States. The case-patients from the U.S., Ireland and Canada had each lived in the UK for more than 5 years during the UK BSE epidemic. There has never been a case of vCJD that did not have a history of exposure within a country where BSE was occurring in cattle. A detailed overview of BSE and vCJD worldwide can be found at the following sites:http://www.cjd.ed.ac.uk/index.htm or http://www.ole.int/eng/info/en_esb.htm

vCJD Differs from Classic CJD

This variant form of CJD differs clinically from the classic form of CJD which is endemic throughout the world including the United States. There are several important differences between these two forms of the disease (See table below from MMWR Jan 9, 2004; 52 (53): 1280-1285.)

Surveillance for CJD and vCJD

CDC monitors the trends in mortality from CJD and vCJD in the United States by analyzing death certificate information from U.S. multiple cause-of-death data, compiled by the National Center for Health Statistics, CDC. CJD occurs worldwide and the estimated annual incidence in many countries, including the United States, has been reported to be about one case per million population.

To provide effective surveillance for CJD and vCJD, an effort should be made to autopsy all suspected cases of prion disease. Details on proper sampling protocols and test availability can be obtained from the National Prion Disease Pathology Surveillance Center, at http://www.cjdsurveillance.com/. The Office of Epidemiology and Food Protection can assist in facilitating arrangements for such testing.

Salmonella Typhimurium Outbreak

During December 2003 through January 2004, eleven human cases of salmonellosis caused by *Salmonella* Typhimurium were reported to the Central District Health Department. All cases appeared to have been associated with cats from one animal shelter. Three cats associated with human cases tested positive for the same pathogen. Isolates from the cats and the humans were indistinguishable by PFGE (pulse-field gel electrophoresis). Antimicrobial sensitivity profiles among tested isolates were similar. Good hygiene among pet owners, particularly when handling pets experiencing diarrhea, or when cleaning litter

TABLE. Clinical and pathologic characteristics distinguishing variant Creutzfeldt-Jakob disease (vCJD) from classic CJD — United Kingdom (UK) and United States, 1979–2001

Characteristic	UK vCJD	U.S. classic CJD
Median age at death (yrs)	28 (range: 14–74)	68 (range: 23–97)*
Median Illness duration (mos)	13–14	4–5
Clinical presentation	Prominent psychiatric/behavioral symptoms; painful sensory symptoms; delayed neurologic signs	Dementia; early neurologic signs
Periodic sharp waves on EEG	Absent	Often present
"Pulvinar sign" on MRI†	Present in >75% of cases	Not reported
Presence of "florid plaques" on neuropathology	Present in great numbers	Rare or absent
Immunohistochemical analysis of brain tissue	Marked accumulation of PrP^{res}§	Variable accumulation
Presence of agent in lymphoid tissue	Readily detected	Not readily detected
Increased glycoform ratio on immunoblot analysis of PrP^{res}	Present	Not present
Genotype at codon 129 of prion protein	Methionine/Methionine	Polymorphic

* Surveillance data 1979–2001.
† High signal in the posterior thalamus.
§ Protease-resistant prion protein.

boxes, heightened awareness of the zoonotic potential associated with domestic pets, and enhanced infection control practices in the shelter, all appear to have played a role in successful outbreak intervention. Evaluation of specific risks in acquiring infection is ongoing.

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